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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,437	03/12/2004	Jorg-Reinhardt Kropp	16274.9a.1	6223

22913 7590 01/05/2007  
WORKMAN NYDEGGER  
(F/K/A WORKMAN NYDEGGER & SEELEY)  
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1000 EAGLE GATE TOWER  
SALT LAKE CITY, UT 84111

EXAMINER
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CHIEM, DINH D

ART UNIT	PAPER NUMBER
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2883

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/799,437

Applicant(s)

KROPP, JORG-REINHARDT

Examiner

Erin D. Chiem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This office action is in response to applicant's amendment filed on October 12, 2006. Currently claims 1-13 and 15-25 are pending. In view of applicant's remark, examiner shall clarify the rejection; however, the grounds of rejection is maintained.

#### ***Claim Objections***

In view of the amendment, the claim objections made in previous office action is hereby withdrawn.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 15, 18-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nosu (US 4,244,045 Nosu hereinafter) in view of Yamauchi (US 7,038,778 B2 Yamauchi hereinafter).

Regarding claims 1-2, and 23 Nosu teaches an optical multiplexer and demultiplexer for multiplexing or demultiplexing optical signals having a plurality of wavelengths, the arrangement comprising a multiplex body (Fig. 12; 60 is a monolithic transparent body) having first and second parallel surfaces (60) between which light is reflected back and forth and

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coupled in or out in a wavelength dependent manner (please follow the arrows designating the directionality of light), a plurality of subassemblies (41-45), each subassembly comprising an optoelectronic transducer (Fig. 9; 131-135 and col. 5, lines 29-31) and an associated optical system that includes a lens (40) aligned at an oblique angle relative to the second surface; and a plurality of wavelength selective filters, each filter being mounted between the second surface and a corresponding subassembly of the plurality of subassemblies (11, 13, 15, 12, 14, 16).

However, Nosu does not teach the optoelectronic transducer is supported by a substrate that includes a lens attached to the substrate.

Yamauchi discloses a spectrometer (15) comprising the multiplexer and demultiplexer (mux/demux) apparatus (13), similar as Nosu, wherein the mux/demux is mounted on a substrate in alignment with the light source. Yamauchi further discloses an optical transducer (41 in Fig. 1 and 10) mounted on a substrate (15) that includes a lens attached to the substrate (11).

It would have been obvious to one having ordinary skill in the art to recognize the device would be more usable when housed on a substrate that can be easily handled since the optical elements are aligned from the source (3) sending a signal to the lens (11) to collimate the signal in a parallel manner to the mux/demux apparatus (15). Furthermore, it would have been obvious to one having ordinary skill in the art to recognize a need for a lens to condense the optical source into the transducer for the optical signal to be efficiently coupled into the transducer. **The motivation** for providing a substrate is for better handling since alignment is predetermined and assembled. Furthermore, Nosu only discloses the critical elements of the mux/demux and Yamauchi discloses the mux/demux in an application. Also, the **motivation** for having a lens attached to the housing is to collimate light from the source integrated in the housing into the

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transducer as clearly shown by Yamauchi, such that the emitting beam is launched into the mux/demux parallel to the optical axis of the receiving member of the mux/demux.

Regarding claim 3, Nosu teaches each subassembly is mechanically connected to the multiplex body, they are mechanically adhering to the body during manufacturing.

Regarding claims 4-9, Nosu teaches providing means to place the subassemblies at an angular orientation with respect to the second surface of the multiplex body (81-86). These spacers are prisms, which further provide optical functionality to the arrangement. The second surface on which the prisms are place upon are glass plates (31-36).

Regarding claims 10-14, Nosu provided thin film bandpass filters (11-16) placed on glass plates (21-26), these bandpass filters reflects non-centered wavelengths (col. 6, line 67 to col. 7, line 2).

Regarding claim 15, in Fig. 17, Nosu teaches elements 41-46 are graded index rod lens for collimating the optical signals from the fibers.

Regarding claims 18-22, Nosu teaches the subassemblies are structurally identical designed for receptions and transmissions, furthermore, the subassemblies taught by Nosu allows the device to operates as a demultiplexer and a multiplexer due to the bi-directionality of the optical paths.

Regarding claim 24, Nosu teaches an optical multiplexer and demultiplexer for multiplexing or demultiplexing optical signals having a plurality of wavelengths, the arrangement comprising a multiplex body (Fig. 12; 60 is a monolithic transparent body) having first and second parallel surfaces (60) between which light is reflected back and forth and

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coupled in or out in a wavelength dependent manner (please follow the arrows designating the directionality of light), a plurality of subassemblies (41-45), each subassembly comprising an optoelectronic transducer (Fig. 9; 131-135 and col. 5, lines 29-31) and an associated optical system that includes a lens (40) aligned at an oblique angle relative to the second surface; and a plurality of wavelength selective filters, each filter being mounted between the second surface and a corresponding subassembly of the plurality of subassemblies (11, 13, 15, 12, 14, 16). Each subassembly further including an associated optical system, each associated optical system defining an associated second optical axis that is aligned at the oblique angle relative to the second surface, the optical system comprising a lens formed on or in the substrate (41-46).

However, Nosu does not teach the optoelectronic transducer is supported by a substrate that includes a lens attached to the substrate.

Yamauchi discloses a spectrometer (15) comprising the multiplexer and demultiplexer (mux/demux) apparatus (13), similar as Nosu, wherein the mux/demux is mounted on a substrate in alignment with the light source. Yamauchi further discloses an optical transducer (41 in Fig. 1 and 10) mounted on a substrate (15) that includes a lens attached to the substrate (11).

It would have been obvious to one having ordinary skill in the art to recognize the device would be more usable when housed on a substrate that can be easily handled since the optical elements are aligned from the source (3) sending a signal to the lens (11) to collimate the signal in a parallel manner to the mux/demux apparatus (15). Furthermore, it would have been obvious to one having ordinary skill in the art to recognize a need for a lens to condense the optical source into the transducer for the optical signal to be efficiently coupled into the transducer. **The motivation** for providing a substrate is for better handling since alignment is predetermined and

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assembled. Furthermore, Nosu only discloses the critical elements of the mux/demux and Yamauchi discloses the mux/demux in an application. Also, the motivation for having a lens attached to the housing is to collimate light from the source integrated in the housing into the transducer as clearly shown by Yamauchi, such that the emitting beam is launched into the mux/demux parallel to the optical axis of the receiving member of the mux/demux.

Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nosu and Yamauchi in further view of Sasaki et al. (US 5,960,141).

Nosu and Yamauchi teaches a mux/demux mounted on a substrate having a lens mounted to collimate the optical signal in a parallel manner to the receiving member of the mux/demux, having a transducer mounted on each subassembly.

However, Nosu does not teach the electronic transducer is mounted on a leadframe where in each assembly are at least partially encapsulated with a potting compound.

Sasaki discloses a leadframe that provides at least partially encapsulated potting compound to insulate the component mounted thereon (col. 7-8, lines 58-15) for the purpose of maintain an operational temperature for the device.

It would have been obvious at the time the invention to recognize although Nosu and Yamauchi, especially Yamauchi, do not explicitly disclose a leadframe but since the transducer is disclosed to be mounted on the subassembly, the subassembly inherently further comprises a leadframe to which electrical connections are made for the transducer to operate. Therefore, the teaching of Sasaki is to supply the deficiency of a potting compound used to protect the

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transducers being mounted individually on each subassembly since the teaching of the potting compound applied on top of a transducer to seal the transducer to the substrate can be applied Nosu and Yamauchi mux/demux. **The motivation** to insulate the component on the substrate is to protect the devices from overheating and further protecting the mounting of each transducer to each subassembly since once the potting compound dries it forms a clear and hard protective surface over the transducer sealing the transducer between the potting compound and the subassembly.

### ***Response to Arguments***

Applicant's arguments filed October 9, 2006 have been fully considered but they are not persuasive. Examiner response to each of applicant's arguments by further clarifying each and every element of the rejection. Furthermore, examiner provided clear explanation of how Yamauchi and Sasaki modify and combine with Nosu disclosed invention.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37



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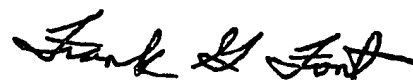
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Erin D Chiem  
Examiner  
Art Unit 2883



Frank G. Font  
Supervisory Primary Examiner  
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